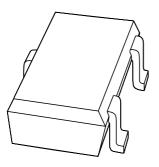
DISCRETE SEMICONDUCTORS

DATA SHEET



1PS70SB10; 1PS70SB14; 1PS70SB15; 1PS70SB16

Schottky barrier (double) diodes

Product specification

1999 Apr 26





Schottky barrier (double) diodes

1PS70SB10; 1PS70SB14; 1PS70SB15; 1PS70SB16

FEATURES

- Low forward voltage
- · Guard ring protected
- Very small plastic SMD package.

APPLICATIONS

- · Ultra high-speed switching
- Voltage clamping
- Protection circuits
- · Blocking diodes.

DESCRIPTION

Planar Schottky barrier diodes encapsulated in a SOT323 very small plastic SMD package. Single diodes and double diodes with different pinning are available.

MARKING

TYPE NUMBER	MARKING CODE (1)
1PS70SB10	7*0
1PS70SB14	7*4
1PS70SB15	7*5
1PS70SB16	7*6

Note

- 1. * = -: Made in Hong Kong.
 - * = t: Made in Malaysia.

PINNING

PIN	1PS70SB				
PIN	10	14	15	16	
1	a ₁	a ₁	a ₁	k ₁	
2	n.c.	k ₂	a ₂	k ₂	
3	k ₁	k ₁ , a ₂	k ₁ , k ₂	a ₁ , a ₂	

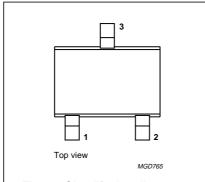


Fig.1 Simplified outline SOT323 (SC-70) and pin configuration.

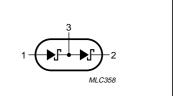


Fig.3 1PS70SB14 diode configuration (symbol).

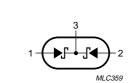


Fig.4 1PS70SB15 diode configuration (symbol).

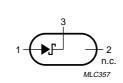


Fig.2 1PS70SB10 single diode configuration (symbol).

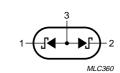


Fig.5 1PS70SB16 diode configuration (symbol).

Philips Semiconductors Product specification

Schottky barrier (double) diodes

1PS70SB10; 1PS70SB14; 1PS70SB15; 1PS70SB16

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT	
Per diode	Per diode					
V _R	continuous reverse voltage		_	30	V	
I _F	continuous forward current		_	200	mA	
I _{FRM}	repetitive peak forward current	$t_p \le 1 \text{ s}; \ \delta \le 0.5$	_	300	mA	
I _{FSM}	non-repetitive peak forward current	t _p < 10 ms	_	600	mA	
P _{tot}	total power dissipation (per package)	T _{amb} < 25 °C	_	200	mW	
T _{stg}	storage temperature		-65	+150	°C	
Tj	junction temperature		_	125	°C	
T _{amb}	operating ambient temperature		-65	+125	°C	

ELECTRICAL CHARACTERISTICS

 T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT		
Per diode						
V _F	continuous forward voltage	see Fig.6				
		I _F = 0.1 mA	240	mV		
		I _F = 1 mA	320	mV		
		I _F = 10 mA	400	mV		
		I _F = 30 mA	500	mV		
		I _F = 100 mA	800	mV		
I _R	continuous reverse current	V _R = 25 V; note 1; see Fig.7	2	μΑ		
C _d	diode capacitance	V _R = 1 V; f = 1 MHz; see Fig.8	10	pF		

Note

1. Pulse test: $t_p = 300 \,\mu s$; $\delta = 0.02$.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	note 1	625	K/W

Note

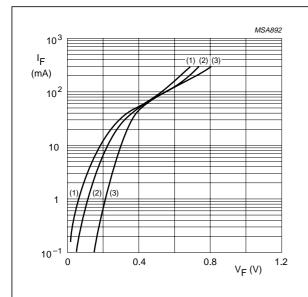
1. Refer to SOT323 (SC70) standard mounting conditions.

1999 Apr 26 3

Schottky barrier (double) diodes

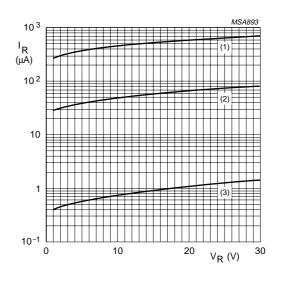
1PS70SB10; 1PS70SB14; 1PS70SB15; 1PS70SB16

GRAPHICAL DATA



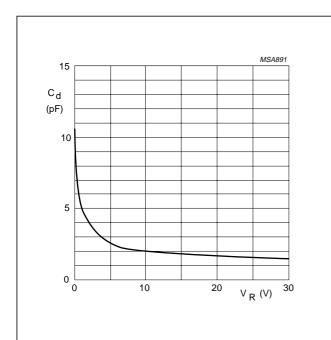
- (1) $T_{amb} = 125 \, ^{\circ}C$.
- (2) $T_{amb} = 85 \, ^{\circ}C$.
- (3) $T_{amb} = 25 \, ^{\circ}C$.

Fig.6 Forward current as a function of forward voltage; typical values.



- (1) $T_{amb} = 125 \, ^{\circ}C$.
- (2) $T_{amb} = 85 \, ^{\circ}C$.
- (3) $T_{amb} = 25 \, ^{\circ}C$.

Fig.7 Reverse current as a function of reverse voltage; typical values.



 $f = 1 \text{ MHz}; T_{amb} = 25 \,^{\circ}\text{C}.$

Fig.8 Diode capacitance as a function of reverse voltage; typical values.

Philips Semiconductors Product specification

Schottky barrier (double) diodes

1PS70SB10; 1PS70SB14; 1PS70SB15; 1PS70SB16

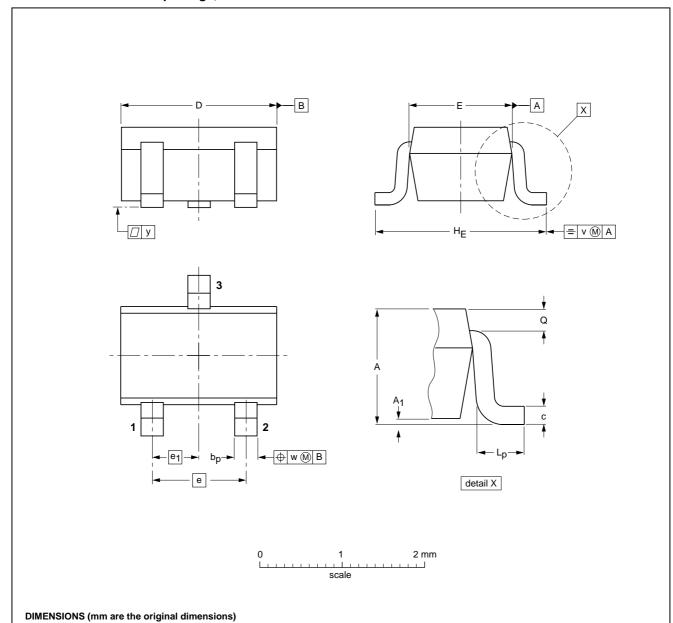
PACKAGE OUTLINE

UNIT

mm

Plastic surface mounted package; 3 leads

SOT323



OUTLINE		REFERENCES		EUROPEAN	ISSUE DATE	
VERSION	IEC	JEDEC	EIAJ		PROJECTION	ISSUE DATE
SOT323			SC-70			97-02-28

 ${\sf H}_{\sf E}$

2.2

Lp

0.45 0.15

e₁

0.65

Q

0.23 0.13

0.2

Ε

1.35

1.15

1.3

1999 Apr 26 5

bp

0.4

0.25

0.10

2.2

1.8

max

0.1

1.1

Product specification Philips Semiconductors

Schottky barrier (double) diodes

1PS70SB10; 1PS70SB14; 1PS70SB15; 1PS70SB16

DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	

Limiting values

Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

Application information

Where application information is given, it is advisory and does not form part of the specification.

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

1999 Apr 26 6 Philips Semiconductors Product specification

Schottky barrier (double) diodes

1PS70SB10; 1PS70SB14; 1PS70SB15; 1PS70SB16

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1999 Apr 26 7

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Printed in The Netherlands 115002/00/01/pp8 Date of release: 1999 Apr 26 Document order number: 9397 750 05266



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